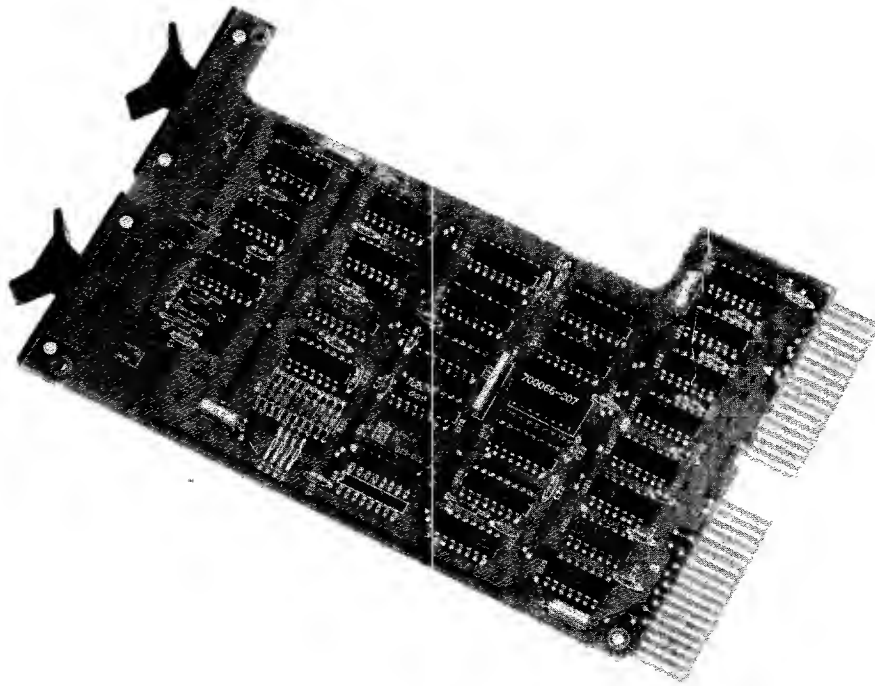


# **PM-RL11 and PM-RL11B BOOTSTRAP LOADER for the PDP-11**



**Plessey  
Peripheral  
Systems**

# PM-RL11 and PM-RL11B

## Bootstrap Loader for the PDP-11

### GENERAL DESCRIPTION

The PM-RL11 and PM-RL11B are bootstrap loaders that permit fast loading of bootstrap programs or restarting the DEC PDP-11 programs for such devices as paper tape readers, discs, magnetic tape, DECTape.\* The general purpose loaders are designed for use in the PDP-11 system with at least 4K of memory and one or more bulk storage devices. It may be placed in any slot that is wired to the UNIBUS, e.g., slots A and B of a memory location or UNIBUS slots A3 and B3 of the Plessey PM-DC11 disc controller. The bootstrap programs are contained in a read-only memory (ROM).

The PM-RL11 works with a switch register and contains bootstraps for the following devices:

- DEC TC11 DECTape Magnetic Tape System
- DEC RF11 Moving Head Disc System
- DEC RC11 Moving Head Disc System
- DEC RK11 or Plessey PM-DS11 Moving Head Disc System
- DEC RP11 or Plessey PM-DS11/14 Moving Head Disc System

The PM-RL11B works with a console and bootstraps all the devices listed above for the PM-RL11 plus the DEC TM11 or Plessey PM-TS11 Magnetic Tape System and the DEC RX11 or Plessey PM-XS11 Floppy Disc Systems.

### FEATURES



- General purpose bootstrap loader for all PDP-11 systems
- Contains bootstrap loaders for the most frequently used PDP-11 devices

\*DEC, PDP, UNIBUS and DECTape are registered trademarks of Digital Equipment Corporation.

## LOADING PROGRAMS

The PM-RL11 and PM-RL11B bootstrap loaders are shipped with jumper wires connected for starting address 773000. Its ROM locations are pre-programmed for a bulk storage (disc or DECTape) bootstrap loader programs and a paper tape bootstrap loader program.

The switch register operation of the PM-RL11 utilizes device addresses, and the console operation of the PM-RL11B uses device codes as follows:

				RL11B	
DEVICE CSR			STARTING ADDRESS		CONSOLE
<u>DEC</u>	<u>PLESSEY</u>	<u>ADDRESS</u>	<u>RL11</u>	<u>RL11B</u>	<u>MNEUMONICS</u>
TM11	PM-TS11	772520	N/A	773000	MT
TS11	N/A	777344	773100		DT
RF11	N/A	777462	773100		RF
RC11	N/A	777450	773100		RC
RK11	PM-DS11	777406	773100		RK
RP11	PM-DS11/80	776716	773100		RP
RX11	PM-XS11	777170	N/A		RX
PC11	PM-PR11	777550	773000+		773000+

†Tries high speed reader first. If none, low speed reader is selected.

## PROGRAM LISTING

The program listing for the bulk storage bootstrap loader program and the paper tape bootstrap are contained the PM-RL11 and PM-RL11B manuals (MA 700596-100 and MA 700596-201 respectively) which are shipped with the equipment.

## RELIABILITY AND QUALITY ASSURANCE

Plessey materials, fabrication, and workmanship conform to the best commercial practices. Selected components are preconditioned prior to assembly to enhance system reliability. Assembled systems are subjected to dynamic burn-in testing at elevated temperatures and are fully computer tested for proper operation using worst case diagnostics. The following standards are met:

- Printed circuit boards are gold plated on the connector fingers.
- Silicon integrated circuits are dual in-line packages unless their application is prohibited by voltage swing, power dissipation or function availability.
- All assemblies having the same part number are interchangeable.
- The circuits are designed to minimize the risk of catastrophic failure propagation.
- All hardware items of the products are resistant to corrosion.
- All components are suitably derated for maximum MTBF (means time between failures).

Workmanship is consistent with the best commercial computer practices and products are designed for high reliability and maintainability as well as low cost and state of the art electrical performance.

## SPECIFICATIONS

### Installation

The PM-RL11 and PM-RL11B can be installed in any standard or modified Unibus slot of a PDP-11 system with at least 4K of memory and one or more bulk storage devices.

### Electrical Specifications

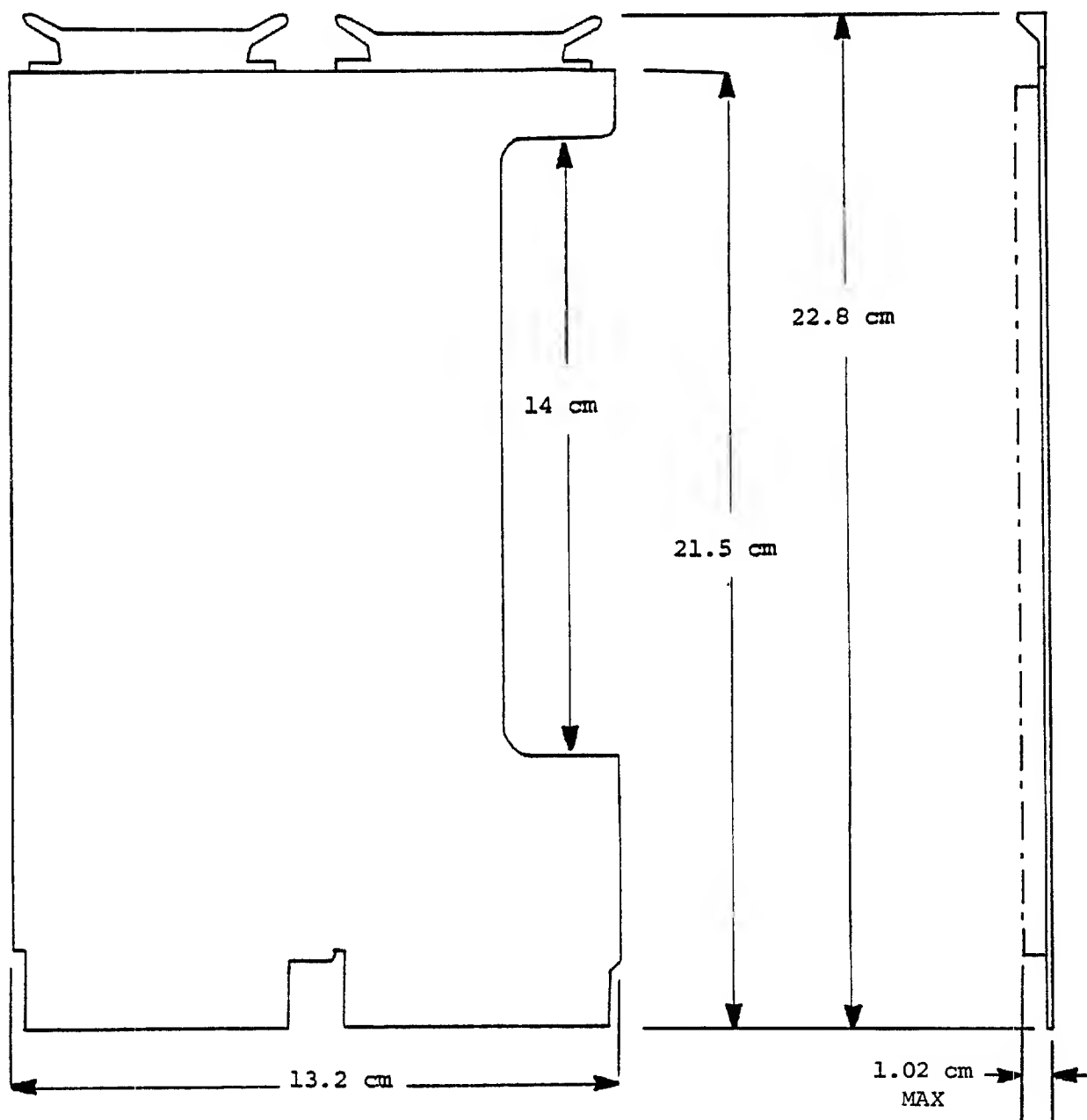
Power Requirements:	+5VDC      1A
ROM Cycle Time:	500ns
Starting Address:	RL11 - 773000 or 773100 RL11B - 773000
Unibus Loading:	1 bus load
Operation:	RL11 Switch register RL11B Console

### Environmental Specifications

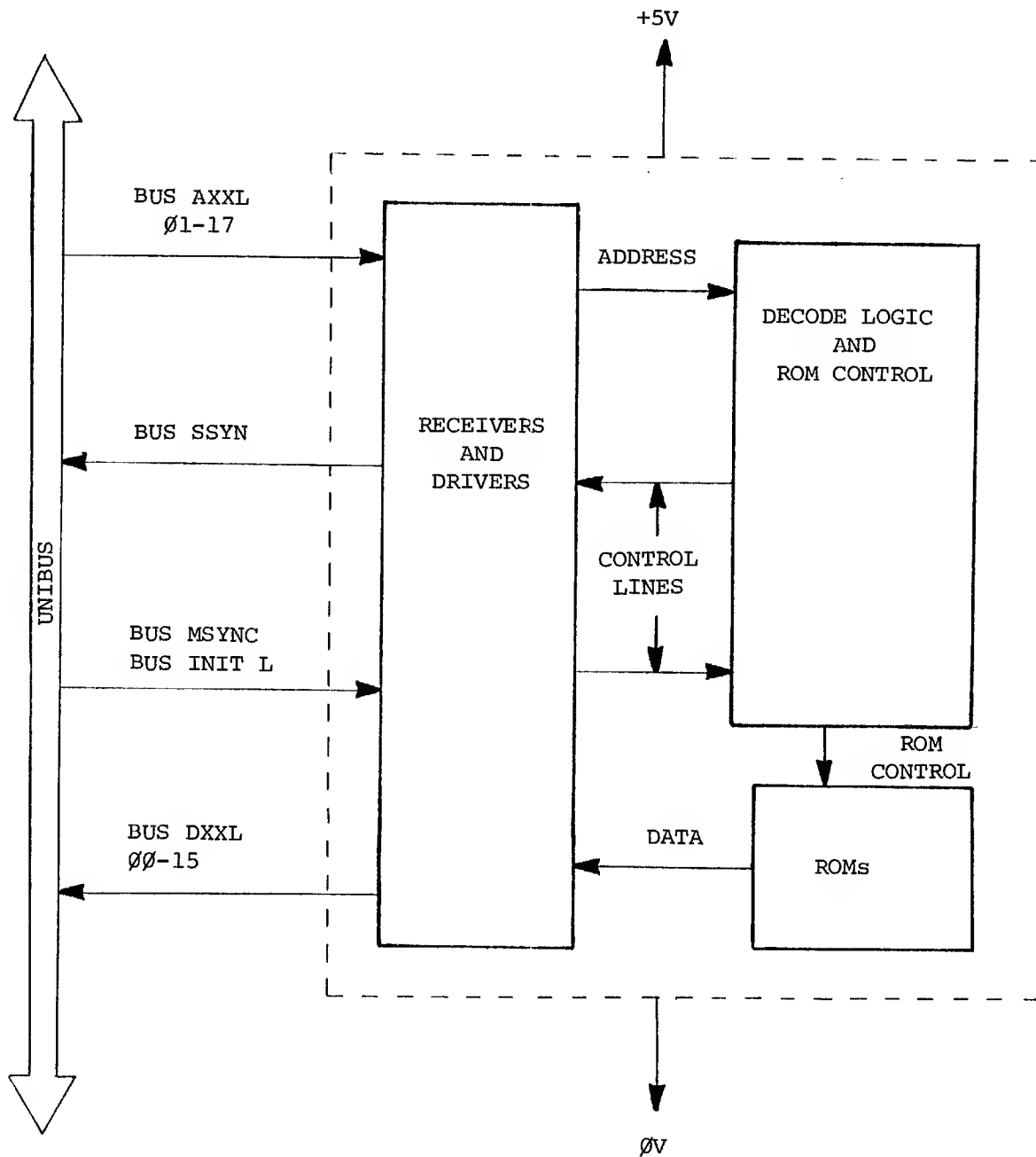
Temperature	
Operating:	0°C to +50°C
Nonoperating:	-10°C to +85°C
Relative Humidity:	10% to 90% without condensation

### Physical Specifications

The PM-RL11 is contained on a single dual wide printed circuit board with dimensions as shown below. It is a two-layered etch board with power, ground and logic traces on both solder and component sides of the board.



PM-RL11 AND PM-RL11B DIMENSIONS



PM-RL11 AND PM-RL11B BLOCK DIAGRAM

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NORWAY:	<u>Oslo</u>	(02) 15 00 90
SPAIN:	<u>Madrid</u>	(01) 433 24 12
SWEDEN:	<u>Stockholm</u>	(08) 23 55 40
SWITZERLAND:	<u>Geneva</u>	(022) 82 55 30
ENGLAND:	<u>Northampton</u>	(0604) 62175
	<u>Tolworth (Surrey)</u>	(01) 330-4100
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# Plessey Peripheral Systems

17466 Daimler Ave., Irvine, CA. 92714 • Tel: (714) 540-9945



**PM-RL11 and PM-RL11B  
Bootstrap Loaders  
Manual**



**Plessey  
Peripheral  
Systems**

# PM-RL11 and PM-RL11B Bootstrap Loaders Manual

August 1978 - Revision A

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# Preface

*This manual provides the information needed to install, operate, and program the PM-RL11 bootstrap loaders manufactured by Plessey Peripheral System, Irvine, California.*

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# Section 1

## General Information

### 1.1 INTRODUCTION

This manual provides the information needed to install, operate and program the PM-RL11B bootstrap loaders manufactured by Plessey Peripheral System, Irvine, CA.

The material is arranged into three sections as follows:

Section 1 - GENERAL INFORMATION. This section contains a general description of the PM-RL11 and PM-RL11B and the specifications for the bootstrap loaders.

Section 2 - INSTALLATION AND OPERATIONS. This section explains the equipment installation and operating procedures.

Section 3 - PROGRAMS. This section contains program listings for bulk storage and paper tape bootstrap programs for the PM-FL11 and PM-RL11B.

Appendix - DRAWINGS. The appendix contains the parts list, logic diagrams and assembly drawings necessary for a complete understanding of the units.

### 1.2 GENERAL DESCRIPTION

The PM-RL11 and PM-RL11B are bootstrap loaders that permit fast loading of bootstrap programs or restarting the DEC PDP-11 programs for such devices as paper tape readers, discs, magnetic tape, DECTape.\* The general purpose loaders are designed for use in the PDP-11 system with at least 4K of memory and one or more bulk storage devices. It may be placed in any slot that is wired to the Unibus, e.g., slots A and B of a memory location or Unibus slots A3 and B3 of the Plessey PM-DC11 disc controller. The bootstrap programs are contained in a read-only memory (ROM). Figure 1-1 is a block diagram for the bootstrap loaders.

\*DECTape, DEC and Unibus are registered trademarks of Digital Equipment Corporation.

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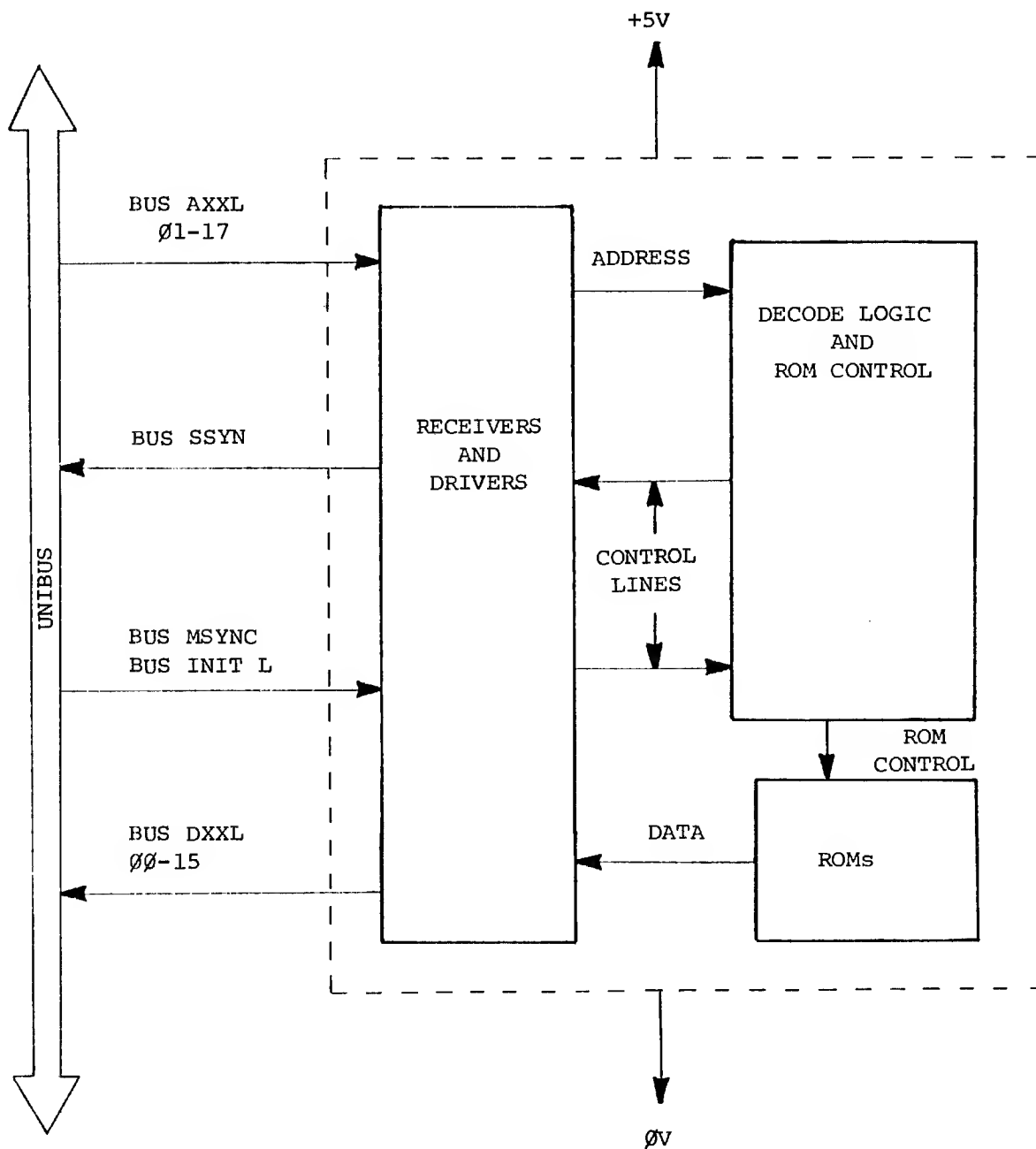


Figure 1-1: Bootstrap Loader Block Diagram

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Note that the PM-RL11 and PM-RL11B can be identified by their part numbers. The PM-RL11 is labelled P/N 700596-100 and the PM-RL11B is labelled P/N 700596-201.

The PM-RL11 works with a switch register and contains bootstraps for the following devices:

- DEC TC11 DECTape Magnetic Tape System
- DEC RF11 Moving Head Disc System
- DEC RC11 Moving Head Disc System
- DEC RK11 or Plessey PM-DS11 Moving Head Disc System
- DEC RP11 or Plessey PM-DS11/14 Moving Head Disc System

The PM-RL11B works with a console and bootstraps all the devices listed above for the PM-RL11 plus the DEC TM11 or Plessey PM-TS11 Magnetic Tape System and the DEC RX11 or Plessey PM-XS11 Floppy Disc Systems.

### 1.3 LOADING PROGRAMS

The PM-RL11 and PM-RL11B bootstrap loaders are shipped with jumper wires connected for starting address 773000. Its ROM locations are pre-programmed for a bulk storage (disc or DECTape) bootstrap loader programs and a paper tape bootstrap loader program.

The switch register operation of the PM-RL11 utilizes device addresses, and the console operation of the PM-RL11B uses device codes as follows:

DEC	PLESSEY	DEVICE CSR ADDRESS	STARTING ADDRESS		RL11B CONSOLE
			RL11	RL11B	MNEUMONICS
TM11	PM-TS11	772520	N/A	773000	MT
TS11	N/A	777344	773100	773000	DT
RF11	N/A	777462	773100	773000	RF
RC11	N/A	777450	773100	773000	RC
RK11	PM-DS11	777406	773100	773000	RK
RP11	PM-DS11/80	776716	773100	773000	RP
RX11	PM-XS11	777170	N/A	773000	RX
PC11	PM-PR11	777550	773000	773000†	PR

†Tries high speed reader first. If none, low speed reader is selected.

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#### 1.4 RELIABILITY AND QUALITY ASSURANCE

Plessey materials, fabrication, and workmanship conform to the best commercial practices. Selected components are preconditioned prior to assembly to enhance system reliability. Assembled systems are fully computer tested for proper operation using worst case diagnostics. The following standards are met:

- Printed circuit boards are gold plated on the connector fingers.
- Silicon integrated circuits are dual in-line packages unless their application is prohibited by voltage swing, power dissipation or function availability.
- All assemblies having the same part number are interchangeable.
- The circuits are designed to minimize the risk of catastrophic failure propagation.
- All hardware items of the products are resistant to corrosion.
- All components are suitably derated for maximum MTBF (means time between failures).

Workmanship is consistent with the best commercial computer practices and products are designed for high reliability and maintainability as well as low cost and state of the art electrical performance.

#### 1.5 SPECIFICATIONS

##### 1.5.1 Installation

The PM-RL11 and PM-RL11B can be installed in any standard or modified Unibus slot of a PDP-11 system with at least 4K of memory and one or more bulk storage devices.

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### 1.5.2 Electrical Specifications

Power Requirements: +5VDC 1A

ROM Cycle Time: 500ns

Starting Address: RL11 - 773000 or 773100  
RL11B - 773000

Unibus Loading: 1 bus load

Operation: RL11 Switch register  
RL11B Console

### 1.5.3 Environmental Specifications

#### Temperature

Operating: 0°C to +50°C

Nonoperating: -10°C to +85°C

Relative Humidity: 10% to 90% without condensation

### 1.5.4 Physical Specifications

The PM-RL11 is contained on a single dual wide printed circuit board with dimensions as shown below. It is a two-layered etch board with power, ground and logic traces on both solder and component sides of the board. See Figure 1-2.

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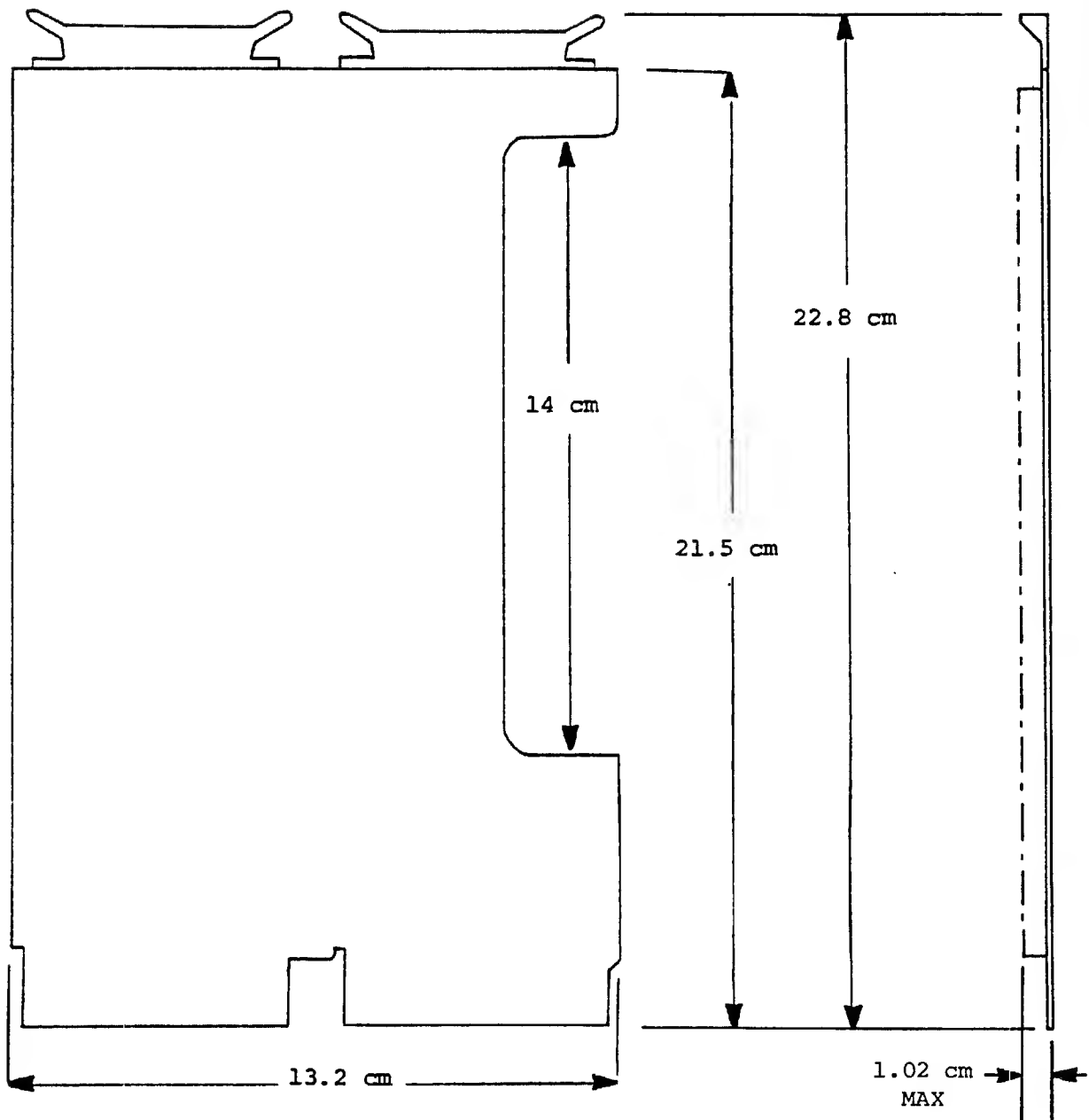


Figure 1-2: PM-RL11 and PM-RL11B Dimensions

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## Section 2

# Installation and Operation

### 2.1 UNPACKING AND INSPECTION

The PM-RL11 and PM-RL11B are shipped in a special packing carton designed to keep the board from vibrating and to give them maximum protection during shipment. The packing carton should be retained in case the unit requires reshipment.

Remove any packing materials before removing the bootstrap loader from its carton. Visually inspect for any physical damage.

### 2.2 INSTALLATION

The PM-RL11 and PM-RL11B plug into any Unibus or modified Unibus (MUD) location in the A-B portion of expansion slots in the following backplanes:

- Plessey    PM-D11/SPC-1  
              PM-D11/SPC-2  
              PM-F11/SPC  
              PM-F11/SPC-1  
              PM-DC11 (J3 A-B)
- DEC        DD11-C  
              DD11-D  
              DD11-P  
              Any other DEC backplane containing expansion slots for Unibus or MUD.

### 2.3 OPERATION

#### 2.3.1 Operating Procedure for PM-RL11

The PM-RL11 has separate operating procedures for bulk storage and paper tape bootstrap as follows:

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- BULK STORAGE BOOTSTRAP PROCEDURE

1. Set the HALT/ENABLE switch to HALT, then ENABLE.
2. Set ROM address 773100 into the Switch Register.
3. Press the LOAD ADDRESS switch.
4. Enter into the Switch Register the device address of the disc or DECTape to be used according to Table 2-1.

DEC	DEVICE PLESSEY	DEVICE ADDRESS
TS11	N/A	777344
RF11	N/A	777462
RC11	N/A	777450
RK11	PM-DS11	777406
RP11	PM-DS11/80	776716
RX11	PM-XS11	777170

Table 2-1: Device Addresses for PM-RL11

5. Press the START switch. The disc or DECTape data should read into memory.

- PAPER TAPE BOOTSTRAP PROCEDURE

1. Set the HALT/ENABLE switch to HALT, then to ENABLE.
2. Place the absolute loader paper tape in the reader to be used, with the special tape leader placed over the read head.
3. If the high speed reader is to be used, set the switch to ON.
4. If the low speed reader is to be used, set the high speed reader switch to OFF and the low speed reader switch to START.
5. Set the starting address, 773000, into the SWITCH REGISTER.

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6. Press the LOAD ADDR switch.
7. Press the START switch. After a short pause the paper tape should read in.

### 2.3.2 Operating Procedure for PM-RL11B

The PM-RL11B has a single operating procedure for both bulk storage and paper tape bootstrap as follows:

1. Set the HALT/ENABLE switch to HALT, then to ENABLE.
2. Load address 773000 into the CPU.
3. Start the CPU at this address.
4. According to Table 2-2 type in the 2 letter device code of the device to be booted. NOTE: Prior to typing the 2 letter code, make sure the device to be booted is ready, or, if paper tape is used, make sure the absolute loader tape is installed in the reader. Correct absolute loader is loaded into the tape reader.

DEVICE DEC	PLESSEY	DEVICE CODE
TM11	PM-TS11	MT
TS11	N/A	DT
RF11	N/A	RF
RC11	B/A	RC
RK11	PM-DS11	RK
RP11	PM-DS11/80	RP
RX11	PM-XS11	RX
PC11	PM-PR11	PR†

†Tries high speed reader first. If none, low speed reader is selected.

Table 2-2: PM-RL11B Device Codes

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# Section 3

## Programs

### 3.1 PROGRAMS FOR THE PM-RL11

The PM-RL11 program for the bulk storage bootstrap loader and for the paper tape bootstrap can be found in Program A.

### 3.2 PROGRAMS FOR THE PM-RL11B

Program B contains the listing for the bulk storage and paper tape bootstrap program for the PM-RL11B.

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; PAPER TAPE BOOTSTRAP PROGRAM

000001 R1 = %1  
 000002 R2 = %2  
 000003 R3 = %3  
 000004 R4 = %4  
 000006 SP = %6  
 000007 PC = %7

; ADDRESS POINTER  
 ; TEMPORARY STORAGE  
 ; TEMPORARY STORAGE  
 ; DEVICE POINTER  
 ; STACK POINTER  
 ; PROGRAM COUNTER

177550 HSR = 177550  
 177560 LSR = 177560

; HIGH SPEED READER ADDRESS  
 ; LOW SPEED READER ADDRESS

173000 . = 173000

173000	012701	START:	MOV	#160000, R1	; SET MEMORY CHECK LIMITS
	160000				
173004	012702		MOV	#6, R2	; TRAP VECTOR IS LOCATION 4 & 6
	000006				
173010	012703		MOV	#DEV+4, R3	; POINTER TO DEVICE ADDRESSES
	173100				
173014	005012		CLR	@R2	; CLEAR TRAP STATUS AT LOC 6
173016	010742		MOV	PC, -(R2)	; SET TRAP ADDRESS AT LOC 4
173020	110706		MOVB	PC, SP	; SET UP STACK OUT OF THE WAY
173022	014304	DEV1:	MOV	-(R3), R4	; GET DEVICE ADDRESS
173024	005714		TST	@R4	; CHECK AVAILABILITY OF DEVICE
173026	100775		BMI	DEV1	; BR IF HROUT OF TAPE (BIT 15)
173030	010712		MOV	PC, @R2	; RESET TRAP ADDRESS AT LOC 4
173032	012706		MOV	#24, SP	; SPECIAL ADDRESS USED AS MASK
	000024				
173036	010441		MOV	R4, -(R1)	; MEM CHK: RDR STAT ADDR MOVED
173040	040601		BIC	SP, R1	; SET R1=X7752, MASK IN SP =24
173042	010111		MOV	R1, @R1	; STORE OWN ADDRESS IN POINTER
173044	011102	LOOP:	MOV	@R1, R2	; GET BYTE POINTER
173046	005214		INC	@R4	; ENABLE READER
173050	105714		TSTB	@R4	; TEST DONE BIT (7)
173052	100376		BPL	.-2	; WAIT UNTIL READY
173054	116412		MOVB	2(R4), @R2	; THEN PICK IT UP AND STORE IT
	000002				
173060	005211		INC	@R1	; BUMP POINTER
173062	120227		CMPB	R2, #375	; STORED JUMP OFFSET?
	000375				
173066	001366		BNE	LOOP	; NOT YET
173070	105222		INCB	(R2)+	; YES, ALL DONE
173072	000142		JMP	-(R2)	; GO EXECUTE AS BRANCH

; DEVICE ADDRESSES FOLLOW - DO NOT CHANGE THE ORDER

173074	177560	DEV:	LSR	; LOW SPEED READER
173076	177550		HSR	; HIGH SPEED READER

000001 . END

PROGRAM A

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SIZE	CODE IDENT NO.	DWG NO.
<b>A</b>	52648	MA 700596
SCALE	REV A	SHEET 3-2





; BULK STORAGE BOOTSTRAP LOADER PROGRAM

; REGISTER ASSIGNMENTS

000000 R0=%0

000001 R1=%1

;

173100 . = 173100

```

173100 013701      MOV      @#177570,R1      ;READ SWITCH REGISTER FOR ...
173100      177570
173104 000005 BEGIN: RESET                    ;FORCE CLEAR IF RETRY
173106 010100      MOV      R1,R0              ;... DEVICE WORD COUNT ADDR
173110 012710      MOV      #-256.,@R0        ;SET TO READ 256 WORDS
173110      177400
173114 020027      CMP      R0,#177344        ;IS IT DECTAPE?
173114      177344
173120 001007      BNE      START              ;NO, GO TO START
173122 012740      MOV      #4002,-(R0)        ;YES, MOVE TAPE TO FRONT
173122      004002
173126 005710      TST      @R0                ;WAIT FOR ERROR
173130 100376      BPL      .-2                ;
173132 005740      TST      -(R0)              ;IS IT ENDZONE?
173134 100363      BPL      BEGIN              ;NO, TRY AGAIN
173136 022020      CMP      (R0)+,(R0)+        ;ADJUST POINTER

173140 012740 START: MOV      #5,-(R0)          ;START ACTUAL READ
173140      000005
173144 105710      TSTB     @R0                ;WAIT FOR DONE
173146 100376      BPL      .-2                ;
173150 005710      TST      @R0                ;ERROR?
173152 100754      BMI      BEGIN              ;IF SO, TRY AGAIN
173154 105010      CLRB     @R0                ;FOR DECTAPE, STOP MOTION
173156 000137      JMP      @#0                ;GO TO ROUTINE LOADED
173156      000000

000001      . END

```

PROGRAM A

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SIZE

CODE IDENT NO.

DWG NO.

A

52648

MA 700596

SCALE

REV

A

SHEET

3-3



000000	R0=	%0
000001	R1=	%1
000002	R2=	%2
000003	R3=	%3
000004	R4=	%4
000005	R5=	%5
000006	R6=	%6
000007	R7=	%7
177560	TKS=	177560
177562	TKB=	177562
177564	TPS=	177564
177566	TPB=	177566
172524	BC =	172524
177550	HSR =	177550
177560	LSR =	177560

173000 . = 173000

PROGRAM B

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SIZE

CODE IDENT NO.

DWG NO.

**A**

52648

MA 700596

SCALE

REV

A

SHEET 3-4



173000	000005	START:	RESET		;RESET
173002	005000		CLR	R0	;CLEAR R0
173004	005002		CLR	R2	;CLEAR R2
173006	005003		CLR	R3	;CLEAR R3
173010	005103		COM	R3	;MAKE R3 = 1'S
173012	012701		MOV	#122,R1	;PUT 122 IN R1
	000122				
173016	060701		ADD	R7,R1	;FORM ADDRESS OF PROMPT
173020	105737	1\$:	TSTB	@#TPS	;PRINTER BSY?
	177564				
173024	100375		BPL	1\$	;YES, BRANCH BACK
173026	111137		MOVB	(R1),@#TPB	;OUTPUT
	177566				
173032	005201		INC	R1	;INC R1 BY ONE
173034	120311		CMPB	R3,(R1)	;ARE WE AT NULL YET?
173036	001370		BNE	1\$	;NO, BRANCH BACK
173040	105737	2\$:	TSTB	@#TKS	;YES! IS CHAR INPUT?
	177560				
173044	100375		BPL	2\$	;NO, BRANCH BACK
173046	113700		MOVB	@#TKB,R0	;YES, PUT CHAR IN R0
	177562				
173052	105737	3\$:	TSTB	@#TPS	;PRINTER BUSY?
	177564				
173056	100375		BPL	3\$	;YES, BRANCH BACK
173060	110037		MOVB	R0,@#TPB	;NO, ECHO
	177566				
173064	042700		BIC	#177600,R0	;STRIP JUNK
	177600				
173070	050002		BIS	R0,R2	;PUT CHAR INTO R2
173072	000302		SWAB	R2	;SWAP BYTES
173074	105702		TSTB	R2	;BOTH CHAR YET?
173076	001760		BEQ	2\$	;NO, BRANCH BACK
173100	005303	4\$:	DEC	R3	;WAIT A WHILE
173102	001376		BNE	4\$	;DONE YET?
173104	062701		ADD	#1,R1	;YES! MAKE R1 EVEN
	000001				
173110	010103		MOV	R1,R3	
173112	005711	5\$:	TST	(R1)	;CK FOR LAST IN TABLE
173114	001731		BEQ	START	;YES NOT IN ROM, BR BACK
173116	020211		CMP	R2,(R1)	;CHECK FOR MATCH
173120	001403		BEQ	6\$	;MATCHED, CONTINUE ON
173122	062701		ADD	#6,R1	;NO MATCH, SET UP NEXT COMPARE
	000006				
173126	000771		BR	5\$	;BRANCH BACK
173130	005721	6\$:	TST	(R1)+	;MOVE PNTR UP ONE ADDR
173132	011104		MOV	(R1),R4	;MOVE CSR TO R4
173134	005721		TST	(R1)+	;MOVE PNTR UP ONE ADDR
173136	061103		ADD	(R1),R3	;ADDR OFFSET TO R3
173140	000113		JMP	(R3)	;JUMP TO IT
173142	000000		HALT		;SOMETHING IS WRONG
					;SHOULDN'T GET HERE EVER

PROGRAM B

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SCALE

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SHEET 3-5

173144	000000	TABLE:	.WORD	0	;NULL
173146	000015		.WORD	15	;CR
173150	000000		.WORD	0	;NULL
173152	000000		.WORD	0	;NULL
173154	000012		.WORD	12	;LF
173156	000000		.WORD	0	;NULL
173160	000000		.WORD	0	;NULL
173162	177452		.WORD	177452	;*
173164	122	TBL1:	.ASCII	/RC/	;RC
173165	103				
173166	177450		.WORD	177450	;RC WCR
173170	000110		.WORD	MAIN-TBL1	;RC OFFSET
173172	122		.ASCII	/RF/	;RF
173173	106				
173174	177462		.WORD	177462	;RF WCR
173176	000110		.WORD	MAIN-TBL1	;RF OFFSET
173200	122		.ASCII	/RK/	;RK
173201	113				
173202	177406		.WORD	177406	;RK WCR
173204	000110		.WORD	MAIN-TBL1	;RK OFFSET
173206	122		.ASCII	/RP/	;RP
173207	120				
173210	176716		.WORD	176716	;RP WCR
173212	000110		.WORD	MAIN-TBL1	;RP OFFSET
173214	104		.ASCII	/DT/	;DT
173215	124				
173216	177342		.WORD	177342	;DT CSR
173220	000062		.WORD	DT-TBL1	;DT OFFSET
173222	115		.ASCII	/MT/	;MT
173223	124				
173224	172522		.WORD	172522	;MT CSR
173226	000154		.WORD	MT-TBL1	;MT OFFSET
173230	122		.ASCII	/RX/	;RX
173231	130				
173232	177170		.WORD	177170	;RX CSR
173234	000314		.WORD	314	;RX OFFSET
173236	120		.ASCII	/PR/	;PR
173237	122				
173240	000000		.WORD	0	
173242	000214		.WORD	214	;PR OFFSET
173244	000000		.WORD	0	;END OF TABLE

PROGRAM B

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SIZE <b>A</b>	CODE IDENT NO. 52648	DWG NO. MA 700596
SCALE	REV A	SHEET 3-6



173246	000005	DT:	RESET		;RESET
173250	012714		MOV	#4003,(R4)	;REWIND
	004003				
173254	005714	7%:	TST	(R4)	;IS DEC TAPE READY?
173256	100376		BPL	7%	;NO, BRANCH BACK
173260	005744		TST	-(R4)	;POINT R4 TO ERR REG
173262	005714		TST	(R4)	;CK FOR END ZONE
173264	100402		BMI	8%	;YES BRANCH
173266	005724		TST	(R4)+	;NO, POINT R4 TO CSR
173270	000766		BR	DT	;TRY AGAIN
173272	022424	8%:	CMP	(R4)+,(R4)+	;POINT R4 TO WCR
173274	012705	MAIN:	MOV	#5,R5	;PUT READ CMD IN R5
	000005				
173300	000005	MAINA:	RESET		;RESET
173302	012714		MOV	#177400,(R4)	;MOVE WORD CNT TO WCR
	177000				
173306	005744		TST	-(R4)	;SET UP R4 TO POINT TO CSR
173310	010514		MOV	R5,(R4)	;START DEVICE
173312	105714	9%:	TSTB	(R4)	;TEST FOR DONE
173314	100376		BPL	9%	;NO JUMP BACK
173316	005714		TST	(R4)	;YES TEST FOR ERROR
173320	100024		BPL	MT1	;NO, JUMP TO PGM START
173322	005724		TST	(R4)+	;YES, POINT R4 BACK TO WCR
173324	020427		CMP	R4,#177342	;IS THIS DEC TAPE?
	177342				
173330	001746		BEQ	DT	;YES, BACK TO DT
173332	020427		CMP	R4,#172522	;IS THIS MAG TAPE?
	172522				
173336	001360		BNE	MAINA	;NO, BACK TO MAINA
173340	000005	MT:	RESET		;RESET
173342	005137		COM	BC	;PUT ALL 1'S IN BYTE COUNT
	172524				
173346	012714		MOV	#60011,(R4)	;SPACE FORWARD
	060011				
173352	105714	10%:	TSTB	(R4)	;IS IT DONE?
173354	100376		BPL	10%	;NO, BRANCH BACK
173356	005714		TST	(R4)	;CHECK FOR ERROR
173360	100767		BMI	MT	;ERROR! BRANCH BACK
173362	005724		TST	(R4)+	;MOVE PNTR TO NEXT ADDR
173364	012705		MOV	#60003,R5	;PUT READ CMD IN R5
	060003				
173370	000743		BR	MAINA	;JUMP TO MAINA
173372	000137	MT1:	JMP	0	;GO TO PGM START
	000000				
173376	000000		HALT		
173400	062703		ADD	#100,R3	
	000100				
173404	012701		MOV	#160000,R1	;SET MEMORY CHECK LIMIT
	160000				
173410	012702		MOV	#6,R2	;TRAP VECTOR 4 & 6
	000006				
173414	005012		CLR	(R2)	;CLR TRAP STATUS AT LOC 6
173416	010742		MOV	PC, -(R2)	;SET TRAP ADDR AT LOC 4
173420	110706		MOVB	PC, SP	;SET UP STACK OUT OF WAY
173422	014304	1%:	MOV	-(R3),R4	;GET DEVICE ADDR
173424	005714		TST	(R4)	;CHECK IF THERE
173426	100775		BMI	1%	;BR IF HSR OUT OF TAPE

PROGRAM B

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SIZE

CODE IDENT NO.

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SCALE

REV

A

SHEET 3-7



173430	010712	MOV	PC, (R2)	;TAPE(ERR BIT 15)
173432	012706	MOV	#24,R6	;RESET TRAP ADDR AT LOC 4
	000024			;SPECIAL ADDR USED AS MASK
173436	010441	MOV	R4, -(R1)	;MEM CHK:RDR STAT ADDR MOVED
173440	040601	BIC	SP,R1	;SET R1=X7752, MASK IN SP=24
173442	010111	MOV	R1, (R1)	;STORE OWN ADDR IN POINTER
173444	011102	2\$: MOV	(R1),R2	;GET BYTE POINTER
173446	005214	INC	(R4)	;ENABLE READER
173450	105714	TSTB	(R4)	;TESTN DONE BIT 7
173452	100376	BPL	.-2	;WAIT UNTIL READY
173454	116412	MOVB	2(R4),(R2)	;THEN PICK IT UP AND STORE IT
	000002			
173460	005211	INC	(R1)	;BUMP POINTER
173462	120227	CMPB	R2,#375	;STORED JUMP OFFSET?
	000375			
173466	001366	BNE	2\$	;NOT YET
173470	105222	INCB	(R2)+	;YES, ALL DONE
173472	000142	JMP	-(R2)	;GO EXECUTE AS BRANCH
173474	177560	DEV: LSR		;LOW SPEED RDR
173476	177550	HSR		;HIGH SPEED RDR
173500	000005	RX: RESET		;RESET BUS
173502	005000	CLR	R0	;SET R0 TO 0
173504	105714	1\$: TSTB	(R4)	;WAIT FOR TRANSFER REQ
173506	001776	BEQ	1\$	;NO, BRANCH BACK
173510	012714	MOV	#3,(R4)	;YES, EMPTY BUFF, GO
	000003			
173514	005714	2\$: TST	(R4)	;WAIT FOR SOMETHING
173516	001776	BEQ	2\$	;NOTHING YET
173520	100767	BMI	RX	;ERR! START OVER
173522	105714	TSTB	(R4)	;FINISHED TRANSFER?
173524	100004	BPL	3\$	;YES, BRANCH
173526	116420	MOVB	2(R4),(R0)+	;NO, PUT DATA INTO MEM
	000002			
173532	000770	BR	2\$	;GET NEXT CHAR
173534	000000	HALT		;EXTRA ROM LOCATION
173536	005000	3\$: CLR	R0	;PUT 0 IN R0
173540	000110	JMP	(R0)	;START PGM @ 0
173542	000000	HALT		;EXTRA ROM LOCATIONS
173544	000000	.WORD	0	;
173546	000000	.WORD	0	;
173550	000000	.WORD	0	;
173552	000000	.WORD	0	;
173554	000000	.WORD	0	;
173556	000000	.WORD	0	;
173560	000000	.WORD	0	;
173562	000000	.WORD	0	;
173564	000000	.WORD	0	;
173566	000000	.WORD	0	;
173570	000000	.WORD	0	;
173572	000000	.WORD	0	;
173574	000000	.WORD	0	;
173576	000000	.WORD	0	;EXTRA ROM LOCATIONS
000001		.END		

PROGRAM B

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SCALE

REV

A

SHEET

3-8

BOOTSTRAP-RL11 MACRO V06-04A 11-AUG-77 00:00 PAGE 6  
SYMBOL TABLE

BC	=	172524	DEV	173474	DT	173246		
HSR	=	177550	LSR	=	177560	MAIN	173274	
MAINA		173300	MT		173340	MT1	173372	
RX		173500	R6		=%000006	R7	=%000007	
START		173000	TABLE		173144	TBL1	173164	
TKB	=	177562	TKS	=	177560	TPB	=	177566
PS	=	177564						
. ABS.		173600			000			
		000000			001			
ERRORS DETECTED: 0								
FREE CORE: 12981. WORDS								
,LP:/NL:SEQ<PERRY1								

PROGRAM B

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CODE IDENT NO.

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REV

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SHEET 3-9



# Appendix A

## Parts List

PL 700596-100 REV D  
PL 700596-201 REV A

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SIZE

**A**

CODE IDENT NO.

52648

DWG NO.

MA 700596

SCALE

REV

A

SHEET

A-1





<b>PARTS LIST</b>		<b>Plessey Memories Incorporated</b> Santa Ana, California		PREPARED BY: <b>TOM COMEY 2-23-76</b> DATE: <b>3/1/76</b> BY: <b>J. W. Tuck</b> DATE: <b>3/3/76</b> BY: <b>J. B. J.</b> DATE: <b>3-26-76</b>		PARTS LIST NO. <b>PL700596-100</b> REV LTR <b>D</b>																																																	
REV TITLE: <b>BOARD ASSEMBLY, ROM1 LOADER PM-RL/11</b>				CODE IDENT NO. <b>52648</b> SH <b>1</b> OF <b>6</b>		CONTRACT NO.																																																	
<table border="1"> <thead> <tr> <th>LTR</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> <th>LTR</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>REL TO PROD PERERO 500755</td> <td>4-15-76</td> <td>J. B. J.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>A</td> <td>INCRP ED 1195</td> <td>7-28-76</td> <td>J. B. J.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>B</td> <td>INCRP E.D. 1484</td> <td>9-16-77</td> <td>J. B. J.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>C</td> <td>INCRP E.D. 1534</td> <td>9-20-77</td> <td>J. B. J.</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>D</td> <td>INCRP EO 2476</td> <td>9-6-78</td> <td>J. B. J.</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								LTR	DESCRIPTION	DATE	APPROVED	LTR	DESCRIPTION	DATE	APPROVED	-	REL TO PROD PERERO 500755	4-15-76	J. B. J.					A	INCRP ED 1195	7-28-76	J. B. J.					B	INCRP E.D. 1484	9-16-77	J. B. J.					C	INCRP E.D. 1534	9-20-77	J. B. J.					D	INCRP EO 2476	9-6-78	J. B. J.				
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REV STATUS OF SHEETS REV LTR <b>D D C D A -</b> SHEET <b>1 2 3 4 5 6 7 8 9 10</b>				INTERPRET SYMBOLS USED AS FOLLOWS: A - PURCHASED ITEM    B - ALIGNED ITEM    C - BULK ITEM D - FABRICATED ITEM    E - SELECTED ITEM F - SPECIFIED BY SOURCE    G - CUSTOMER PROVIDED ITEM																																																			

**PRODUCTION RELEASE**

<b>PARTS LIST</b>		<b>Plessey Memories Incorporated</b> Santa Ana, California		CODE IDENT NO. <b>52648</b> PARTS LIST NO. <b>PL700596-100</b>		SH <b>2</b> REV LTR <b>D</b>	
CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.							
REFERENCE DESIGNATION	FIND	REFERENCE DESIGNATION	FIND	REFERENCE DESIGNATION	FIND	REFERENCE DESIGNATION	FIND
TE1	5		22				
	6		23				
	7	R1, 15, 14	24				
U1	8	R2, 4	25				
U2	9	R3, 10, 11, 12, 13, 17	26				
U3, 19, 20, 21, 22	10	R5, 16	27				
U4, 23, 24, 25, 26	11	R6, 7, 8, 9	28				
U5	12		29				
U6, 14	13	RM1	30				
U7	14		31				
	15	C1, 4, 5, 9, 10, 11, 13					
	16	C14, 15, 16, 17, 18, 19, 20	32				
	17	C21, 22, 23, 24, 26, 27					
	18	C28, 29, 30, 31, 33, 34					
U11	19	C2, 3	33				
U12, 13, 17, 18	20	C6	34				
U15	21	C7, 8, 25, 32	35				
U16		C12	36				

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SIZE <b>A</b>	CODE IDENT NO. 52648	DWG NO. MA 700596
SCALE	REV A	SHEET A-2

REV	NOTE	QTY REQD /M	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	F 1 N O.	S Y M	C/I USAGE			
										C/I CODE	INV ON HAND	P A R	UNIT COST
		1 EA	700594-001	P.W.B./ROM LOADER				1	B				
C		2 EA	701339-001	HANDLE, CARD PULL				2	A				
		4 EA	MS16535 -154	RIVET, TUBULAR, OVAL HEAD .123 DIA. X .188 LONG, AL ALY				3	A				
								4					
B		1 EA	US-2-16 -110-G-B	SOCKET, 16 PIN DIP	SCANBE	18677		5	A				
B		1 EA	700066-115	PLUG, ADDRESS STRAPPING				6	B				
								7					
		1 EA	SN74123	DUAL RETEIG MONO MULTI W/CLEAR	TEXAS INSTR	01295		8	A				
		1 EA	SN74H74	DUAL D-TYPE POS EDG- TRIG F/F W/PRESET/CLEAR	TEXAS INSTR	01295		9	A				
		5 EA	136021-380	QUAD 2-INPUT NOR/RECEIVER				10	C				
		5 EA	SN7438	QUAD 2-INPUT POS-NAND BUFFERS W/OC	TEXAS INSTR	01295		11	A				
		1 EA	SN74H76	DUAL J-K F/F/PRESET/ CLEAR	TEXAS INSTR	01295		12	A				
		2 EA	SN74H40	DUAL 4-INPUT POS- NAND BUFFERS	TEXAS INSTR	01295		13	A				
		1 EA	SN7442	4-LINE-TO-10 LINE DECODERS	TEXAS INSTR	01295		14	A				
D								15	C				
D								16	C				
D								17	C				
		1 EA	100052-001	1024-BIT READ-ONLY MEMORIES				18	C				
		4 EA	SN74175	HEX /QUAD D-TYPE F/F W/CLEAR	TEXAS INSTR	01295		19	A				
		1 EA	SN7485	4-BIT MAGNITUDE COMPARATORS	TEXAS INSTR	01295		20	A				
		1 EA	SN74145	BCD-TO-DEC DECODERS/DRIVERS	TEXAS INSTR	01295		21	A				
								22					
								23					
		3 EA	RC07GF 331J	RESISTOR, 330Ω ±5%, 1/4W	MIL-R-11			24	A				
		2 EA	RC07GF 562J	RESISTOR, 5.6K ±5%, 1/4W	MIL-R-11			25	A				
		6 EA	RC07GF 102J	RESISTOR, 1.0K ±5%, 1/4W	MIL-R-11			26	A				

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SIZE

A

CODE IDENT NO.

52648

DWG NO.

MA 700596

SCALE

REV

A

SHEET

A-3

REV	NO	QTY	REQ	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	F I N D	S Y M	C/I USAGE			
											C/I CODE	INV ON HAND	P A R	UNIT COST
		2	EA	RC07GF 151J	RESISTOR, 150Ω ±5%, 1/4W	MIL-R-11			27	A				
		4	EA	RC07GF 681J	RESISTOR, 680Ω ±5%, 1/4W	MIL-R-11			28	A				
									29					
		1	EA	100013-004	RESISTOR, MODULE 330Ω				30	B				
									31					
		26	EA	CO69B160 E103 Z	CAPACITOR/.01 UF +80-20%, 16V	SPRAGUE	05571		32	A				
		2	EA	CD15CD 100J03	CAPACITOR/10 PF ±5%, 500V	CORNELL DUBILIER	93790		33	A				
		1	EA	CD15FD 101J03	CAPACITOR/100 PF ±5%, 500V	CORNELL DUBILIER	93790		34	A				
		4	EA	150D156X 0020B2	CAPACITOR/15 UF ±10%, 20V	SPRAGUE	05571		35	A				
		1	EA	CD15FD 221J03	CAPACITOR/220 PF ±5%, 500V	CORNELL DUBILIER	93790		36	A				
									37					
									38					
									39					
		3	IN	5951	WIRE/30AWG SOLID, KYNAR INSULATION, COLOR: OPTIONAL	ALPHA WIRE	23172		40	G				
		REF		SN63WRAP3	SOLDER	QQ-S-571			41	G				
									42					
									43					
		REF		SD700596	SCHEMATIC DIAGRAM ROM LOADER PM-RL/11				44	C				
		REF		TS700596	TEST SPECIFICATION ROM LOADER PM-RL/11				45	C				
									46					
									47					
									48					
									49					
									50					
									51					
									52					

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SIZE

**A**

SCALE

CODE IDENT NO.

52648

DWG NO.

MA 700596


REV


A

SHEET

A-4



<b>PARTS LIST</b>		 <b>Plessey Microsystems</b>		DATE: <b>GORDON BAILEY 6-11-77</b> BY: <i>L. Tankie 7-6-77</i> DATE: <i>9/9/77</i> BY: <i>9/12/77</i>		PARTS LIST NO. <b>PL700596-201</b> REV LTR <b>A</b>																							
BOARD ASSEMBLY, ROM LOADER, PM- RL/11-201				CODE IDENT NO. <b>52648</b> 1234570		SH <b>1</b> OF <b>6</b>																							
<table border="1"> <thead> <tr> <th>LTR</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> <th>LTR</th> <th>DESCRIPTION</th> <th>DATE</th> <th>APPROVED</th> </tr> </thead> <tbody> <tr> <td><b>A</b></td> <td>REL TO PROD PER ERD 501360</td> <td>7-6-77</td> <td><i>Kat</i></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								LTR	DESCRIPTION	DATE	APPROVED	LTR	DESCRIPTION	DATE	APPROVED	<b>A</b>	REL TO PROD PER ERD 501360	7-6-77	<i>Kat</i>										
LTR	DESCRIPTION	DATE	APPROVED	LTR	DESCRIPTION	DATE	APPROVED																						
<b>A</b>	REL TO PROD PER ERD 501360	7-6-77	<i>Kat</i>																										
<div style="border: 2px solid black; padding: 5px; display: inline-block;"> <b>PRODUCTION RELEASE</b> </div>																													
REV STATUS OF SHEETS SHEET		<table border="1"> <tr> <td><b>A</b></td> <td><b>A</b></td> <td><b>A</b></td> <td><b>A</b></td> <td><b>A</b></td> <td><b>A</b></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> </table>								<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>					1	2	3	4	5	6	7	8	9	10
<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>	<b>A</b>																								
1	2	3	4	5	6	7	8	9	10																				
INTERPRET SYMBOLS USED AS FOLLOWS: A - PURCHASED ITEM      B - ALTERNATE ITEM      C - BULK ITEM D - FABRICATED ITEM      E - SELECTED ITEM F - SPECIFICATION OR SOURCE      G - OUTSIDE FABRICATED ITEM																													

<b>PARTS LIST</b>		 <b>Plessey Memories Incorporated</b> Santa Ana, California		CODE IDENT NO. <b>52648</b> PARTS LIST NO. <b>PL700596-201</b>		SH <b>2</b> REV LTR <b>A</b>	
CROSS INDEX OF REFERENCE DESIGNATIONS TO FIND NO.							
REFERENCE DESIGNATION		FIND NO.	REFERENCE DESIGNATION		FIND NO.	REFERENCE DESIGNATION	
TBI		5			22		
		6			23		
		7	R1, 15, 14		24		
U1		8	R2, 4		25		
U2		9	R3, 10, 11, 12, 13, 17		26		
U3, 19, 20, 21, 22		10	R5, 16		27		
U4, 23, 24, 25, 26		11	R6, 7, 8, 9		28		
U5		12			29		
U6, 14		13	RM1		30		
U7		14			31		
		15	C1, 4, 5, 9, 10, 11, 13				
U9		16	C14, 15, 16, 17, 18, 19, 20		32		
U10		17	C2, 22, 23, 24, 26, 27				
			C28, 29, 30, 31, 33, 34				
U11		18	C2, 3		33		
U12, 13, 17, 18		19	C6		34		
U15		20	C7, 8, 25, 32		35		
U16		21	C12		36		

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SIZE <b>A</b>	CODE IDENT NO. 52648	DWG NO. MA 700596
SCALE	REV A	SHEET A-5

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	F I N O	S Y H	C/I USAGE			
								C/I CODE	INV ON HAND	P A R	UNIT COST
1	700594-001	P.W.B./ROM LOADER				1	E				
2	701339-001	HANDLE, CAED				2	A				
4	MS16535-154	RIVET, TUBULAR, OVAL HEAD .123 DIA. X .183 LONG, AL ALY				3	A				
						4					
1	WS-2-16-110-G-13	SOCKET, 16 PIN DIP	SCANBE	18677		5	A				
1	700066-207	PLUG, ADDRESS STRAPPING				6	B				
						7					
1	SN74123	DUAL D-TYPE POS-EDG-TRIG F/F W/CLEAR	TEXAS INSTR	01295		8	A				
1	SN74H74	DUAL D-TYPE POS-EDG-TRIG F/F W/PRESET/CLEAR	TEXAS INSTR	01295		9	A				
5	136021-380	QUAD 2-INPUT NOR/RECEIVER				10	C				
5	SN7453	QUAD 2-INPUT POS-NAND BUFFERS W/OC	TEXAS INSTR	01295		11	A				
1	SN74H76	DUAL J-K F/F/PRESET/CLEAR	TEXAS INSTR	01295		12	A				
2	SN74H40	DUAL 4-INPUT POS-NAND BUFFERS	TEXAS INSTR	01295		13	A				
1	SN7442	4-LINE-TO-10 LINE DECODERS	TEXAS INSTR	01295		14	A				
						15					
1	100015-008	1024-BIT READ-ONLY MEMORIES				16	C				
1	100015-007	1024-BIT READ-ONLY MEMORIES				17	C				
1	100015-005	1024-BIT READ-ONLY MEMORIES				18	C				
4	SN74175	HEX/QUAD D-TYPE F/F W/CLEAR	TEXAS INSTR	01295		19	A				
1	SN7485	4-BIT MAGNITUDE COMPARATORS	TEXAS INSTR	01295		20	A				
1	SN74145	BCD-TO-DEC DECODERS/DRIVERS	TEXAS INSTR	01295		21	A				
						22					
						23					
3	RC07GF 331J	RESISTOR, 330Ω ±5%, 1/4W	MIL-R-11			24	A				
2	RC07GF 562J	RESISTOR, 5.6K ±5%, 1/4W	MIL-R-11			25	A				
6	RC07GF 102J	RESISTOR, 1.0K ±5%, 1/4W	MIL-R-11			26	A				

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SIZE

**A**

SCALE

CODE IDENT NO.

52648

DWG NO.

MA 700596

REV

A

SHEET

A-6

REV	NOTE	QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	SPECIFICATION	CODE IDENT NO.	ZONE	F I N O.	S Y M	C/I USAGE			
										C/I CODE	INV ON HAND	P A R	UNIT COST
		2	RC07GF 151J	RESISTOR, 150Ω ±5%, 1/4W	MIL-R-11			27	A				
		4	RC07GF 681J	RESISTOR, 680Ω ±5%, 1/4W	MIL-R-11			28	A				
								29					
		1	100013-004	RESISTOR, MODULE 330Ω				30	B				
								31					
		26	C069B160 E103	CAPACITOR/.01 UF +80-20%, 16V	SPRAGUE	05571		32	A				
		2	CD15CD 100J03	CAPACITOR/10 PF ±5%, 500V	CORNELL DUEILIER	93790		33	A				
		1	CD15FD 101J03	CAPACITOR/100 PF ±5%, 500V	CORNELL DUBILIER	93790		34	A				
		4	150D156X 0020B2	CAPACITOR/15 UF ±10%, 20V	SPRAGUE	05571		35	A				
		1	CD15FD 221J03	CAPACITOR/220 PF ±5%, 500V	CORNELL DUBILIER	93790		36	A				
								37					
								38					
								39					
		AR	5951	WIRE/30AWG SOLID, KYNAR INSULATION, COLOR: OPTIONAL	ALPHA WIRE	23172		40	G				
		AR	SN63WRAP3	SOLDER	QQ-S-571			41	G				
								42					
								43					
		REF	SD700596	SCHEMATIC DIAGRAM ROM LOADER PM-RL/11				44	C				
		REF	TS700596 -201	TEST SPECIFICATION ROM LOADER PM-RL/11				45	C				
								46					
								47					
								48					
								49					
								50					
								51					
								52					

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SIZE

CODE IDENT NO.

DWG NO.

A

52648

MA 700596

SCALE

REV

A

SHEET

A-7

# Appendix B

## Assembly Drawing

700596 REV D

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SIZE

**A**

CODE IDENT NO.

52648

DWG NO.

MA 700596

SCALE

REV

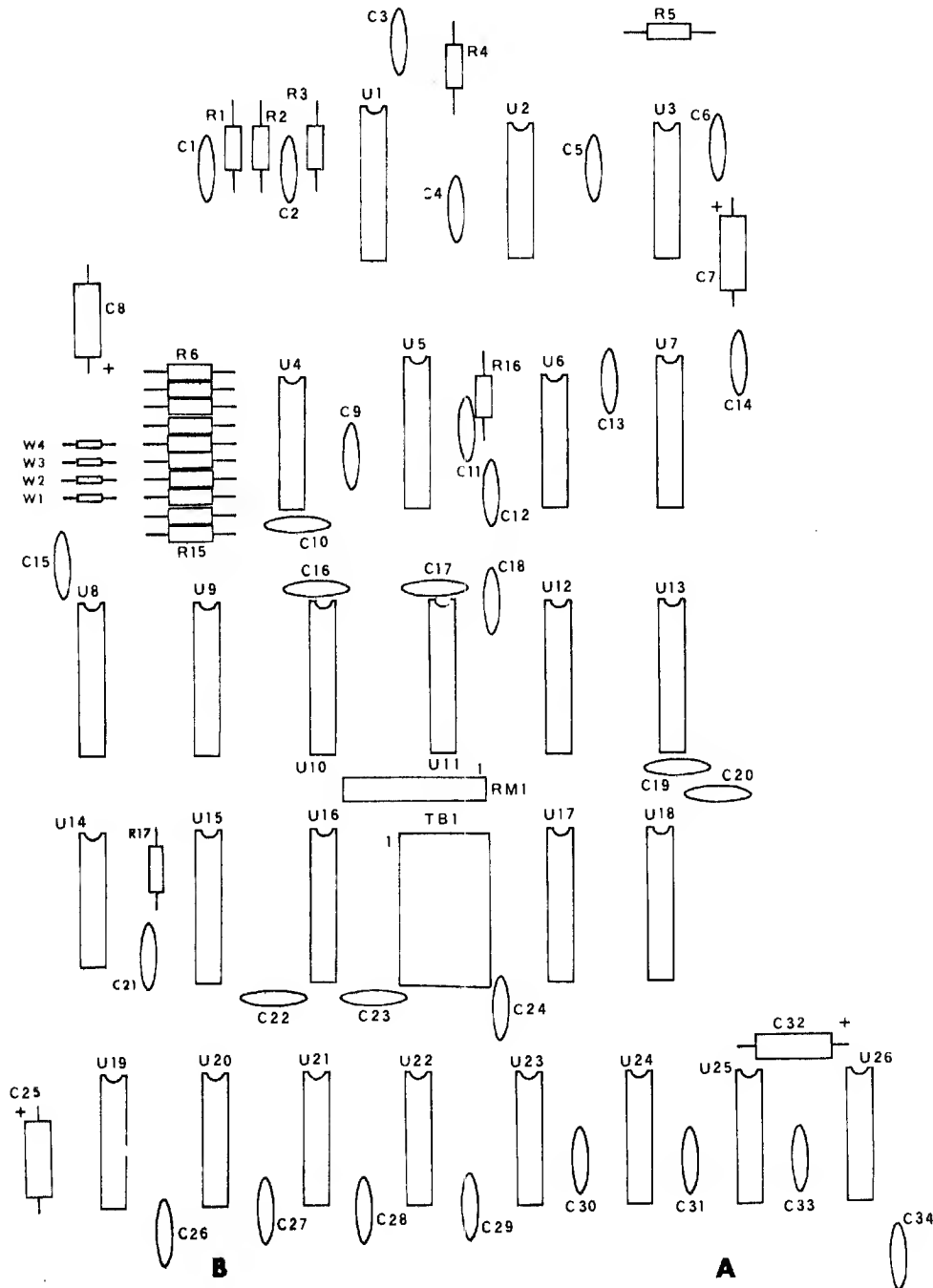
A

SHEET

B-1



JUMPER CHART <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span>				
VERSION	W1	W2	W3	W4
-100		X		
-200		X		
-201		X		



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SIZE

**A**

CODE IDENT NO.

52648

DWG NO.

700596

SCALE

REV

A

SHEET

B-2



# Appendix C

## Schematic Diagrams

SD 700596 REV A

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SIZE

**A**

CODE IDENT NO.

52648

DWG NO.

MA 700596

SCALE

REV

A

SHEET

C-1



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REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
-		REL TO PROD PER ERO 500755	4-2-76
A		INCLRP E.O. 1474	7-5-77

LAST DESIGNATION USED	
INTEGRATED CIRCUIT	U26
RESISTOR	R17
CAPACITOR	C34
RESISTOR MODULE	RM1

REFERENCE DESIGNATOR	GATES USED PER TOTAL	PART NO.
U3	3/4	8836
U4	2/4	7438

SIDE 2		SIDE 1	
+5V	A	BUS INIT L	
	B		
GND	C	BUS D00 L	
BUS D01 L	D	BUS D02 L	
BUS D03 L	E	BUS D04 L	
BUS D05 L	F	BUS D06 L	
BUS D07 L	H	BUS D08 L	
BUS D09 L	J	BUS D10 L	
BUS D11 L	K	BUS D12 L	
BUS D13 L	L	BUS D14 L	
BUS D15 L	M		
	N		
	P		
	R		
	S		
	T	GND	
	U		
	V		

SIDE 2		SIDE 1	
+5V	A		
	B		
GND	C		
	D		
	E		
	F		
	H	BUS A01 L	
BUS A02 L	J	BUS A03 L	
BUS A04 L	K	BUS A05 L	
BUS A06 L	L	BUS A07 L	
BUS A08 L	M	BUS A09 L	
BUS A10 L	N	BUS A11 L	
BUS A12 L	P	BUS A13 L	
BUS A14 L	R	BUS A15 L	
BUS A16 L	S	BUS A17 L	
	T		
	U	BUS SSYN L	
GND	V	BUS MSYN L	

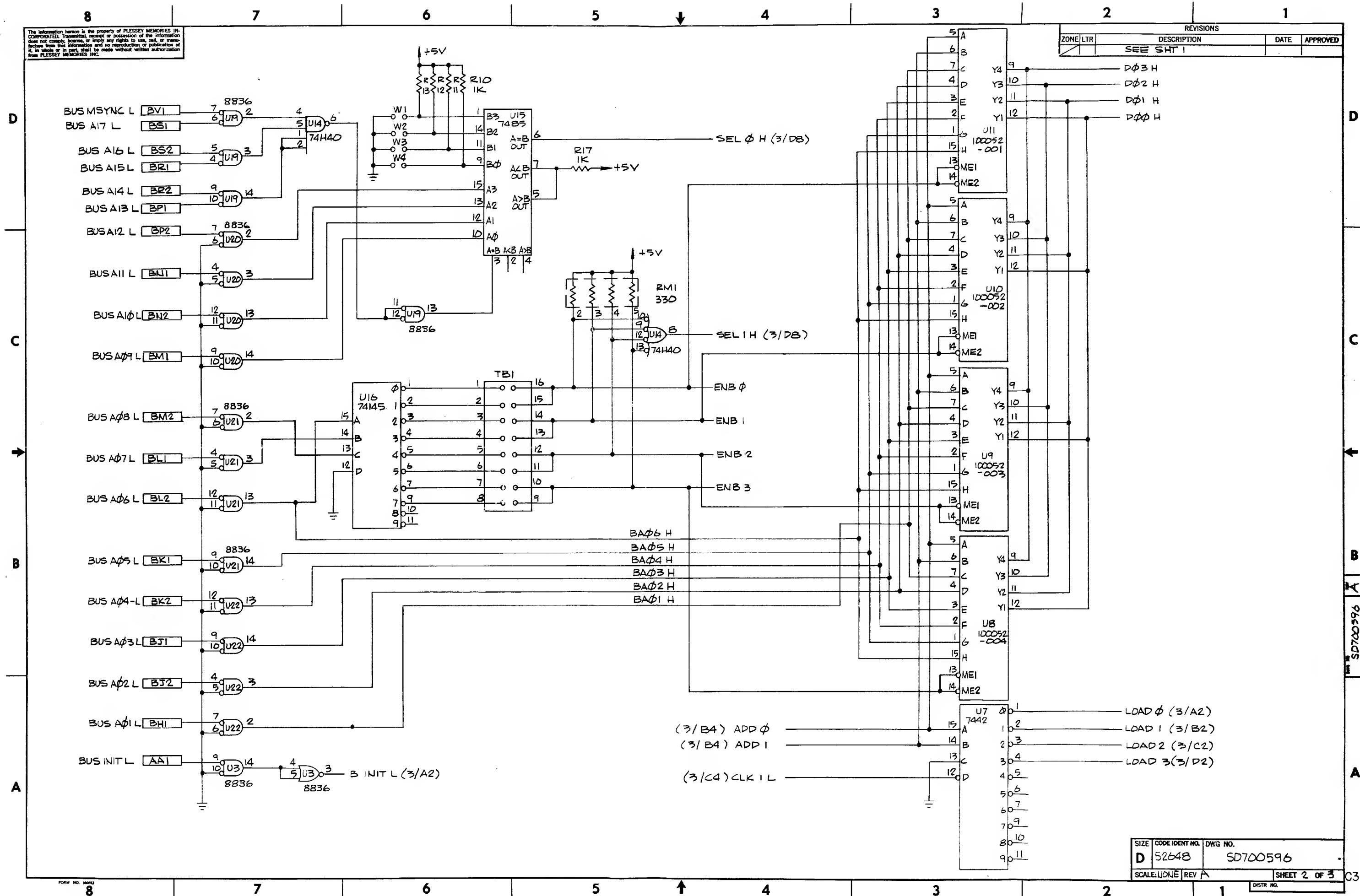
PRODUCTION RELEASE

5. **AA1** SIGNALS SHOWN IN RECTANGLE INDICATES BOARD SIDE  
PIN DESIGNATION  
CONNECTOR
4. **(4/A2)** SIGNALS SHOWN IN PARENTHESIS INDICATES WHERE SIGNAL ORIGINATES OR TERMINATES.  
ZONE DESIGNATION  
ZONE DESIGNATION  
SHEET NUMBER
3. FOR ASSEMBLY DRAWING SEE 700596.
2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
1. ALL RESISTOR VALUES ARE IN OHMS,  $\pm 5\%$ ,  $1/4$  WATTS.
- NOTES: UNLESS OTHERWISE SPECIFIED.

PART/ASSY NO. & QTY PER ASSY		NOTE (PART OR IDENTIFYING NO.)		NOMENCLATURE OR DESCRIPTION / MATERIAL		SPEC/SOURCE		CODE IDENT NO.		FIND NO.	
PART/ASSY REV LTR		DO NOT SCALE DRAWING		CONTRACT NO.		Plessey Memories Incorporated		Santa Ana, California			
100596-100 PM-RL/11		SCREW THREADS PER HANDBOOK H-38 COUNTERBORE AND SPOTFACE FILLET RADIUS TO BE .001 MAXIMUM REMOVE ALL BURRS AND BREAK SHARP EDGES EQUIVALENT TO .001R ROUGHNESS OF MACHINED SURFACES 125/PER USAS 146.1 STANDARD HOLE TOLERANCE PER AND 1007 TOLERANCES ON: .XX = .00 .XXX = .000 ANGLES = 90° UNLESS OTHERWISE SPECIFIED		DRAWN GATES 4-2-76 CHECKED R. W. T. 4-2-76 ENGR. J. A. W. 8/22/76 PROJ. ENGR. J. A. W. 5-13-76		DWG TITLE SCHEMATIC DIAGRAM ROM LOADER PM-RL/11		SIZE D 52648		SD700596	
NEXT ASSY USED ON APPLICATION		INTERPRET DIMENSIONS AND TOLERANCES PER USAS 146.1 DIMENSIONS ARE IN INCHES AND APPLY AFTER HEAT TREAT AND FINISH UNLESS OTHERWISE SPECIFIED		OTHER APPROVALS		SCALE: NONE		SHEET 1 OF 3		DISTR NO.	

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REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
SEE SHT 1			
APPROVED			



SIZE	CODE IDENT NO.	DWG NO.
D	52648	SD700596
SCALE: NONE		
REV A		
SHEET 2 OF 3		

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REVISIONS			
ZONE	LTR	DESCRIPTION	DATE
SEE SHT 1			
DATE		APPROVED	

D

C

B

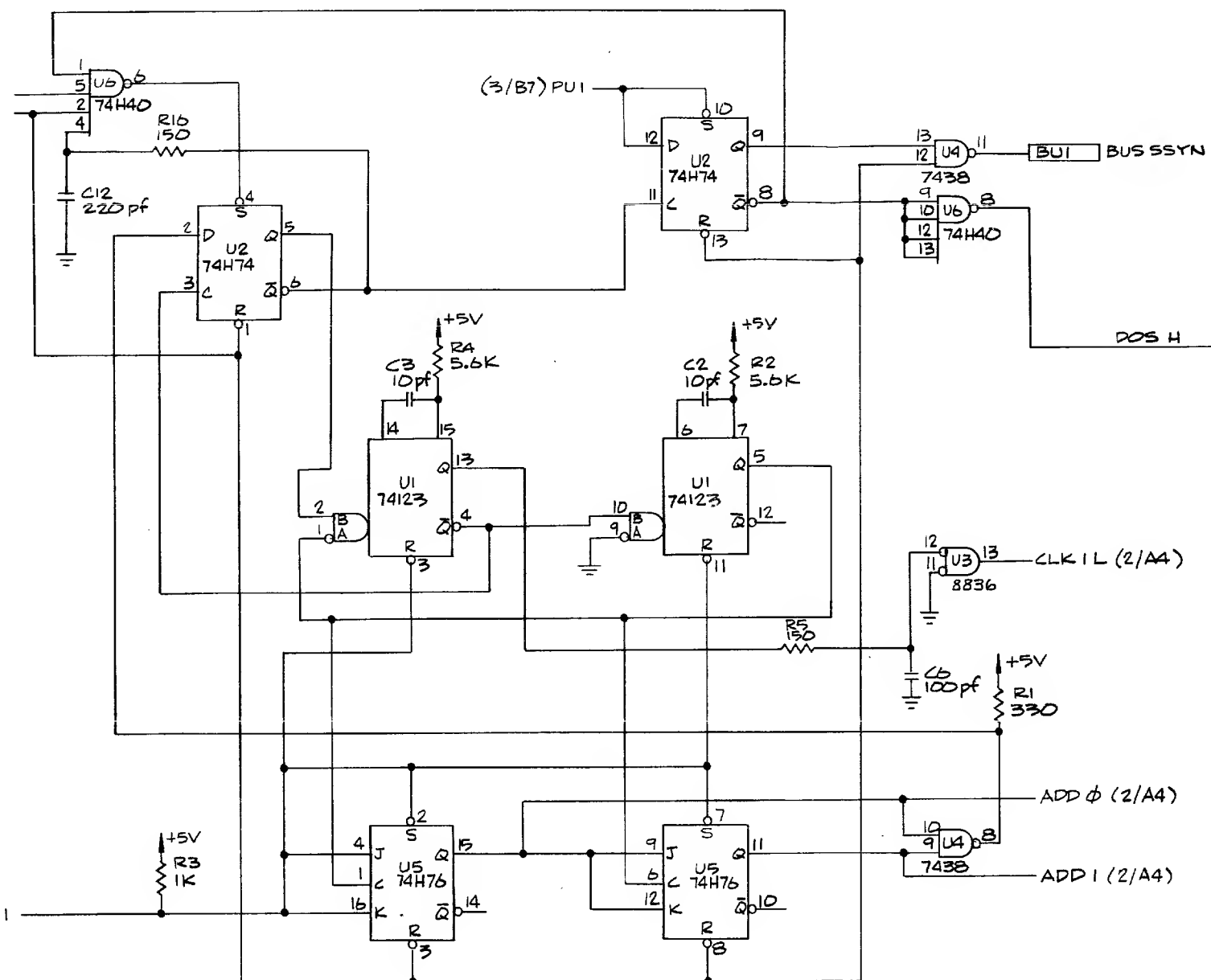
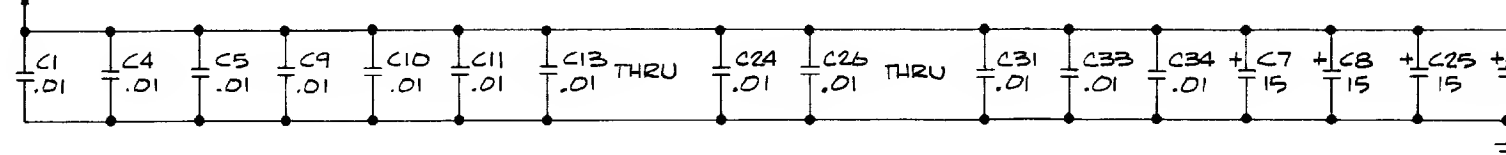
A

(2/C4) SEL I H  
(2/D4) SEL  $\phi$  H

(3/B7) PUI

(3/D5) PUI

+5V



D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

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D $\phi$ 2 - H

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D $\phi$ 1 - H

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ADD 1 (2/A4)

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D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

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D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

D $\phi$ 1 - H

D $\phi\phi$  - H

BUI BUS SSYN L

DOS H

CLK 1 L (2/A4)

ADD  $\phi$  (2/A4)

ADD 1 (2/A4)

D $\phi$ 3 - H

D $\phi$ 2 - H

## NORTH AMERICAN SALES OFFICES

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NEW MEXICO:	<u>Albuquerque</u>	(505) 294-5790
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	<u>Cologne</u>	(0221) 58 50 07
	<u>Hamburg</u>	(04531) 12 73 4
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NORWAY:	<u>Oslo</u>	(02) 15 00 90
SPAIN:	<u>Madrid</u>	(01) 433 24 12
SWEDEN:	<u>Stockholm</u>	(08) 23 55 40
SWITZERLAND:	<u>Geneva</u>	(022) 82 55 30
ENGLAND:	<u>Northampton</u>	(0604) 62175
	<u>Tolworth (Surrey)</u>	(01) 330-4100
	<u>Manchester</u>	(061) 440-8485
AUSTRIA:	<u>Vienna</u>	(0222) 63 45 75

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SOUTH AFRICA:	<u>Johannesburg</u>	724-7241
INDIA:	<u>Madras</u>	81 07 41
PAKISTAN:	<u>Karachi</u>	43 73 15

(SERVICE CENTERS ARE UNDERLINED)